RHODE ISLAND WILDLIFE INVESTIGATIONS

WILD TURKEY STATUS REPORT and SPRING TURKEY HUNTER SURVEY 2004

Brian C. Tefft, Principal Wildlife Biologist
Rhode Island Department of Environmental Management
Division of Fish and Wildlife

March 17, 2005

WILDLIFE LEAFLET NUMBER 25

2004 Rhode Island Wild Turkey Status Report

Author: Brian C. Tefft, Principal Wildlife Biologist,
Rhode Island Department of Environmental Management
Division of Fish and Wildlife
West Kingston, R.I 02892

Introduction:

The return of the wild turkey from near extinction in the early 1900's is one of the most significant success stories in the history of wildlife management. Management of the wild turkey population is the responsibility of the RIDEM Division of Fish and Wildlife. The Departments objective for wild turkey management is to provide for sufficient populations to sustain a quality turkey-hunting season and otherwise provide turkey populations for the satisfaction and enjoyment of the general public. Effective management of this dynamic resource is dependent upon the availability of sound and reliable information to base management decisions on. This report discusses the biological information gathered and survey results that support management decisions for the wild turkey in Rhode Island. I would like to thank and acknowledge the wildlife staff and cooperators who have contributed to the data presented in the report and to the turkey hunters who record and report survey information during the season.

Population Status:

Rhode Island began its wild turkey restoration efforts in 1980 with a release of 29 wild-trapped Vermont birds in the town of Exeter. The fall 2004 population is estimated at approximately 6000 birds (figure 1). The wild turkey currently occupies approximately 500 square miles of the state, and birds have been confirmed in all mainland towns with the exception of the coastal towns of Bristol, Aquidneck Island (Portsmouth, Middletown and Newport), Conanicut Island (Jamestown) and Block Island.

The state's turkey population has been relatively stable and generally increasing over the last several years; however, annual fluctuations in the abundance and productivity of wild turkeys as a rule can be expected. Rhode Island's population is relatively new and has enjoyed many years of success and population growth that may not always be the case. Environmental factors, primarily weather (local and short term conditions) and climate (regional average and long term conditions), can influence turkey populations significantly along with other factors acting on population dynamics. Population growth is determined by reproduction (births) and mortality (deaths) all controlled by the variables that influence these factors including availability of suitable habitat, food supply, predators, disease, and hunting.

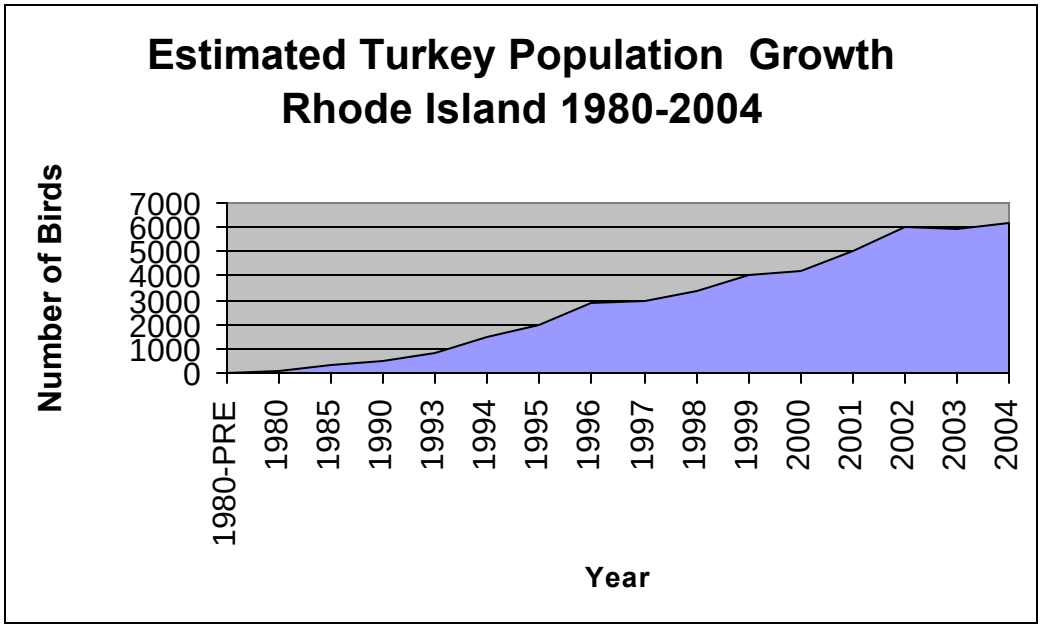
The wild turkey is a very hardy bird that is well adapted for survival and has proven it can successfully thrive in the highly fragmented and changing Rhode Island landscape. The turkey is also forest dwelling specialist (it requires large areas of forested habitat in order to survive) and history has proven destruction of the forest can spell the demise of the wild turkey. Understanding that annual fluctuations in the turkey population will occur is necessary as factors beyond human control often determine the annual production. Likewise, understanding the forces that control population dynamics and documenting population trends through various surveys and monitoring harvest are key to proper management of Rhode Island's wild turkey population.

Weather and food supply can play a significant role in the annual productivity of a turkey population. The relationship of these factors to turkey population dynamics is not completely understood; however, there are certain features that help explain annual population fluctuation. One of the most frequent questions posed is how well Rhode Island turkeys survive during our severe winters or when food supply is scarce. Severe winter weather, including prolonged sub-freezing temperature and deep snow can affect turkeys as snow depths over 6 inches reduce turkey movements and deep powder snow or ice over 12 inches can stop all movement on the ground impacting the ability of the birds to find food. Research has shown that turkeys are capable of surviving for up to two weeks without food while losing greater than 40% of their body weight. Few Rhode Island winters approach this severity as periodic rain and thaw periods usually open ground for foraging allowing birds to scratch and dig for access to food. Even after surviving to nest in the spring following a severe winter, hens may be nutritionally stressed and have a reduced ability to hatch eggs and rear young. Spring weather after hatching is another important factor affecting production of turkeys, particularly poult survival. Wet, cold and rainy spring weather may contribute to loss of poults to hypothermia.

Food supply is another major factor affecting turkey populations. Turkeys are generalist feeders and consume a variety of foods, often being described as opportunistic omnivores. Turkeys do feed extensively on hard mast (acorns) produced by the oak forest; however, acorn crops are variable and frequently fail to produce so that they cannot be relied on exclusively. Fortunately, turkeys will switch to alternate foods during periods when acorns are not available, including a variety of grasses, seeds, fruits and insects. During the fall of 2004, the acorn crop was a failure just about everywhere in the state. The persistent snow cover (present for much of this winter) and cold temperatures combined with the failed mast crop have raised questions about the survival of the states turkey population. Fortunately, turkeys have the ability to consume a variety of foods and respond to harsh snow conditions by restricting

movements to habitats that permit access to food in spite of snow. Habitats that permit access to food include freshwater springs and seeps, wetlands and areas along small streams where warm groundwater prevents freezing or exposes a rich variety of food. Other important areas include farms where manure is spread or waste silage is available, sheltered woodlands and backyard bird feeders. Persistent fruits of woody shrubs and vines (crabapple, sumac, barberry, and bittersweet) and standing corn available above the snow are important food items for turkeys at this time of year. For the hunter or any turkey enthusiast all of this information should be convincing that documenting and explaining the annual abundance of the turkey population is a complex matter requiring careful consideration in management programs.

Figure 1



Restoration

Restoration of the wild turkey in Rhode Island was completed in 1996 and birds are presently found in most of the suitable habitats in the state. Populations in many areas are below carrying capacity such that there are suitable habitats and areas for expansion in the flock. Potential turkey habitats also exist on Conanicut Island and Prudence Island in Narragansett Bay and Block Island offshore. There have been a few local requests to release birds in these areas; however, the relatively small amount of available habitats may not make the effort worthwhile or successful. There are no immediate plans to re-populate these habitats.

Spring Gobbler Season:

The 2004 Rhode Island spring turkey season was held April 29 to May 27, 2004 and was the State's nineteenth season since the spring season was initiated in 1986. Turkey hunters harvested 220 birds, a 20% reduction from the record harvest of 275 established in the 2003 season (table 1). The harvest includes 5 birds taken during the early junior hunter and paraplegic hunter seasons held April 24 and 25. There were 1323 permits (down 12% from 2003) purchased with hunters enjoying a 20% success ratio (figures 2, 3). The harvest consisted of 73 juveniles (jakes) and 147 adults (gobblers), a 0.5 to 1 juvenile to adult ratio. The 2004 season was a safe season with no hunting accidents occurring. Crowding of hunters is often cited as a concern when hunting in a small state like Rhode Island; however, hunters encountered an average of 1.3 other hunters while turkey hunting in 2004.

The restoration of wild turkeys is a major success story in Rhode Island and elsewhere in the northeast with hunters enjoying excellent hunting opportunities. This years harvest was down and can be attributed to reduced hunter effort combined with poor production during the last two years and poor gobbling during the season. Turkeys were harvested in 16 of 39 towns around the state with the towns of Exeter (39), Glocester (20), Burrillville (19) and Scituate (18) producing the most birds. Most towns saw a slight reduction in harvest when compared to last years' record. Private lands accounted for a majority of the harvested birds (86%), although birds were also taken on nine different state wildlife management areas. Big River WMA in West Greenwich and Arcadia WMA in Exeter are the top producing state land areas. The first week of the season accounted for 62% of the harvest (136 birds), 15% were taken during second week, 13% during the third week and 9% were taken during the fourth week. The spring harvest per square mile of habitat (0.51) is below the threshold for establishing a fall hunting season (figure 4).

Several large gobblers were harvested during the season including 57 birds that weighed in at over 20 pounds. The average live weight for jakes was 14.6 pounds and the average live weight for adults was 19.0 pounds. The two largest birds weighed were three-year old 23.5-pound gobblers with 1-inch spurs and 10-inch beards harvested in Charlestown and Hopkinton. The state record is a 25.5-pound gobbler taken in 2001 in Exeter. Seven multiple bearded birds were harvested including six double-beards and one triple-bearded bird. Resident hunters took 95% (209) of the birds to 5% (11 birds) for non-resident hunters.

Research and Management Activities:

Brood Survey: The 2004 brood index is 3.6 young per adult for all hens and 4.5 young per adult of hens with broods (n=233 broods). Cooperators reported 233 total broods: 349 hens with broods and 91 (21%) without broods (table 2). Cooperators reported 239 broods during the 2003, a 236% increase over 2002 largely due to better participation from cooperators. The brood survey index for 2003 was 3.1 young per adult, a 38% decrease in the index from 2002 and the lowest recorded in 11 years (figure 5, 6). Actual precipitation was well above average and temperature was slightly below but near average during the 2003 brood season. Local weather produced near normal precipitation and temperatures in the summer of 2004 and brood production improved but was still below average. During the hunting season, hunters reported seeing 5 broods and 2 nests were reported each with 5 eggs on May 2, 2004.

Mast Survey: A mast survey for Rhode Island was first initiated in 1996 following methods described and used in other states in the region (Uhlig and Wilson 1952, Pack and Igo 1995). Personnel from the RIDEM division of Fish and Wildlife and division of Forest Environment are asked to survey mast conditions in their area of the state and described conditions as abundant, common or scarce. The mast index is determined by calculating the percent of total reports, for a particular tree species, which rate the mast as abundant, common or scarce. Abundant ratings are multiplied by a value of 100, common ratings by a value of 50 and scarce ratings are valued at zero.

The results of the 2004 survey are based on 23 reports of mast conditions from Providence, Kent, Washington and Newport counties (table 3 and 4). Mast conditions vary considerably from year to year and can have a major influence on fall and winter food supply for turkey and other species that rely on it significantly including deer, grouse and squirrel. In the last seven years bumper oak acorn crops, defined as an above normal crop of acorns, has happened twice (1998 and 2001) and just average crops have occurred in 4 of 7 years. The 2004 oak mast crop was practically a total failure statewide with few to no acorns and scarce soft mast in most areas. White oak mast was reported scarce at 19 of 21 sites and red oak was scarce at 16 or 23 sites statewide. Other hard mast species, beech and hickory also were scarce or non-existent at most sites sampled. Soft mast or fruits produced by a variety of trees and shrubs, particularly grape, apple, and greenbriar were also very scarce during the 2004 mast survey. Trees of many species of oak produce hard mast, a high-energy food source for wildlife, with white oak and red oak the main contributors and less common species such as scarlet, black and scrub oak trees also producing nuts. Soft fruits and berries are a highly nutritious food source for many birds during the fall and migration period. The concurrent scarcity of both hard and soft mast in 2004 made conditions

particularly difficult for wildlife that rely on these staple food items and would have had to switch to alternate food sources or starve.

Gobble Count: The Division conducts gobble count routes to monitor distribution and trends in gobbler activity prior to the hunting season (table 5). In 2004, the percentage of stops recording active gobblers declined by 5 percent from 2003 and was the lowest index since 1999; however, the numbers of individual gobblers active at each stop increased slightly. The activity index has been highest during the last two years and is a reflection of the number of males active along survey routes prior to the hunting season. The gobble index, representing the intensity of gobbling of males present along the route was just about average.

Miscellaneous

*Hunter Safety***:** No hunting accidents occurred during the 2004 turkey season. The Division of Fish and Wildlife holds turkey-hunting seminars annually in partnership with the State Chapter of the National Wild Turkey Federation.

Special Hunts: A youth hunt, termed a Junior Turkey Hunting Weekend, was established and for the first time took place in spring 2004. The format of the new season was a two-day hunt on the weekend prior to the statewide opening day. The youth hunt days were combined with the special two-day season for paraplegic hunters and was open to junior hunters, age 12 through 14 years, with a valid license accompanied by at least one adult who is a legal resident with a valid hunting license. In its second year, paraplegic hunters were also allocated two special days prior to opening day to hunt turkeys and they shared the weekend with youth hunters. During the first youth hunt, 3 birds were taken. Paraplegic hunters harvested 2 birds during the season.

Table 1 Rhode Island Spring Turkey Season Results

Town	2004	2003	2002	2001	2000	1999	19 Year total
	(4/29-5/27)	(4/30-5/26)	(4/25-5/24)	(4/26-5/22)	(4/27-5/23)	(4/29 - 5/25)	1986-2004
Burrillville	19	20	24	11	16	7	160
Charlestown	14	11	16	15	8	7	91
Coventry	15	11	15	20	12	14	108
Cranston	0	4	3	8	0	0	18
E. Greenwich	0	1	2	2	0	1	7
Exeter	39	44	43	34	26	27	309
Foster	9	17	12	10	8	8	87
Glocester	20	24	14	10	8	12	112
Hopkinton	9	16	20	12	8	11	96
Johnston	2	7	0	3	0	0	15
N. Kingstown	6	11	7	4	1	1	32
N. Smithfield	13	8	10	3	4	2	44
Richmond	9	26	18	27	20	22	186
Scituate	18	20	23	14	16	11	124
S. Kingstown	13	10	14	5	3	2	50
Smithfield	12	12	19	11	6	6	70
Tiverton	0	2	0	1	0	0	3
Westerly	6	6	7	6	2	3	33
W. Greenwich	16	25	9	11	9	13	132
TOTAL	**220**	**275**	**256**	**207**	**147**	**147**	**1677**

Table 2. Wild Turkey Brood Survey Data Rhode Island.

Year	Total Adults	Total Young	Total Adults + Young	Adults without young	Young per Adult	Number Reports
1993	23	114	137		5.0	11
1994	62	313	375		5.0	45
1995	80	442	522		5.5	55
1996	53	233	286		4.4	33
1997	83	452	535		5.4	54
1998	104	433	537		4.2	59
1999	168	955	1123		5.7	100
2000	156	696	852		4.5	95
2001	148	787	935		5.3	89
2002	124	530	654		4.3	71
2003	456	1413	1869	50	3.1	239
2004	440	1570	2010	91	3.6	233
			Average:		4.7	

Figure 2

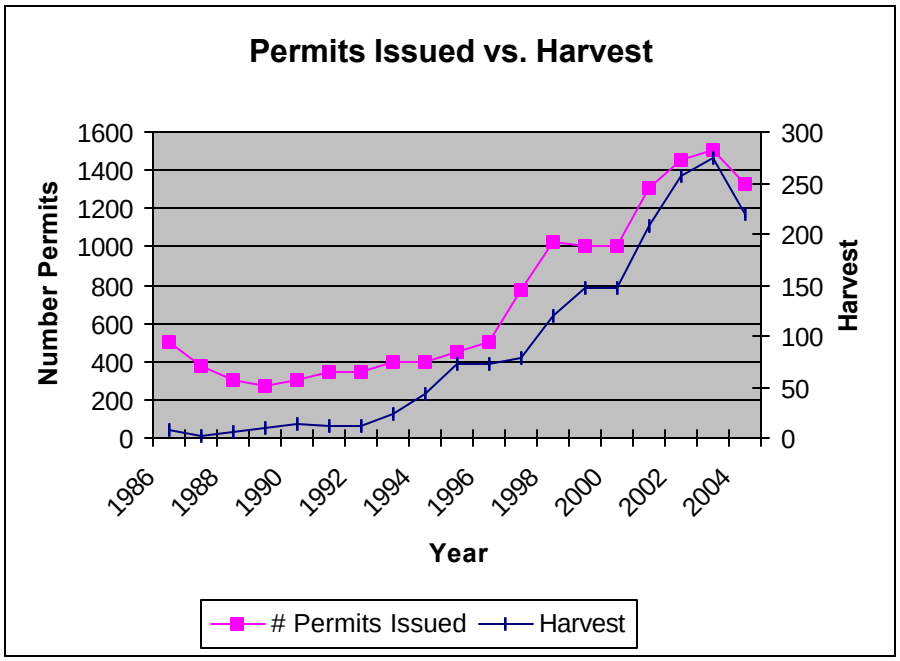


Figure 3

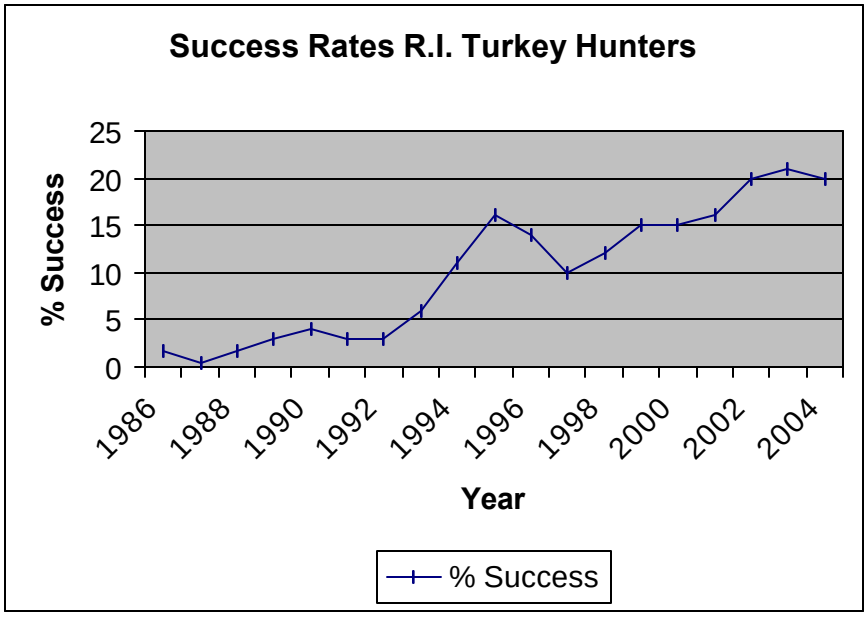


Figure 4

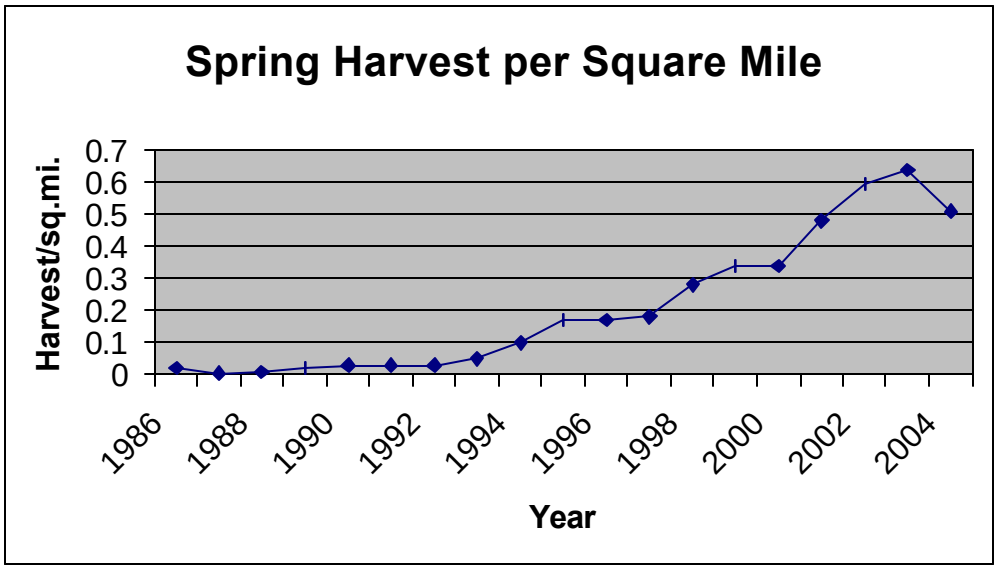

Spring Harvest per Square Mile
Harvest/sq.mi.
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
Year

Figure 5

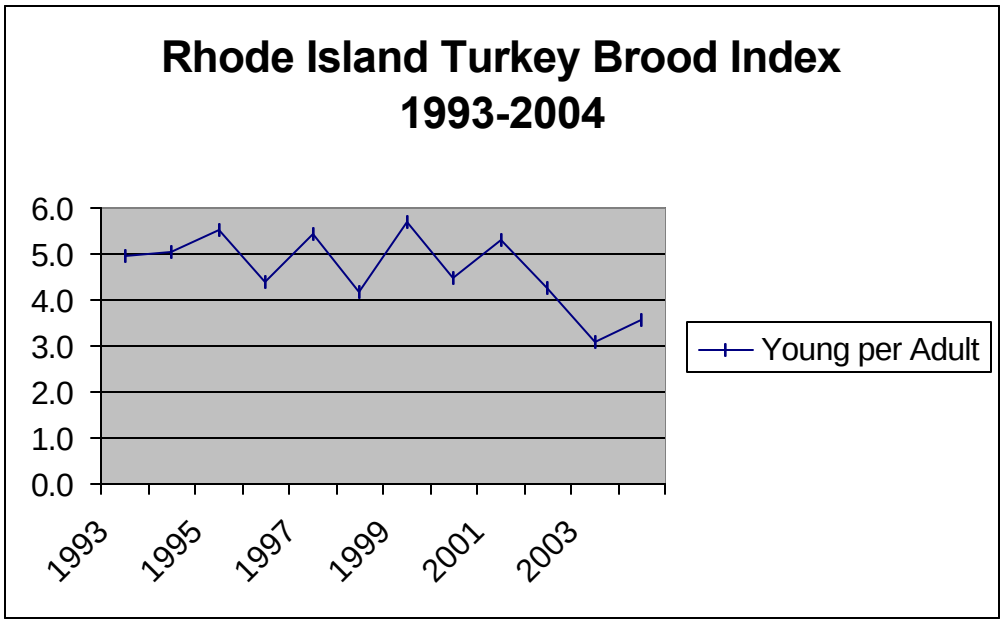

Rhode Island Turkey Brood Index
1993-2004
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1993
1995
1997
1999
2001
2003
Young per Adult

Table 3. Statewide mast survey index for Rhode Island (Uhlig and Wilson 1952)

Year	WhiteOak	Red Oak	Beech	Sumac	Grape	Greenbriar	Apple
1996	8	22	12	18	18	6	32
1997	10	18	n/a	n/a	n/a	n/a	n/a
1998	52	69	18	18	21	31	24
1999	15	17	0	3	17	7	13
2000	10	13	4	13	8	17	15
2001	26	33	5	12	14	12	12
2002	16	21	2	3	3	14	0
2003	17	33	7	2	29	14	24
2004	4	17	2	4	11	2	9
Average	18	27	6	9	15	13	16

Table 5. Rhode Island Gobble Count Index

Year	% Stops Active (A)	Activity Index (B)	Gobble Index (C)
1993	3.3%	0.04	2.81
1994	9.3%	0.12	3.82
1995	10.4%	0.13	4.44
1996	8.2%	0.10	3.02
1997	14.1%	0.19	3.55
1998	15.5%	0.25	3.64
1999	10.1%	0.14	5.56
2000	12.5%	0.24	4.83
2001	14.6%	0.26	4.43
2002	15.5%	0.25	5.34
2003	15.7%	0.24	14.29
2004	10.9%	0.28	5.36

(a) # stops where a gobbler was heard/ total stops
(b) total # gobblers active/ total stops
(c)total calls / total # gobblers active

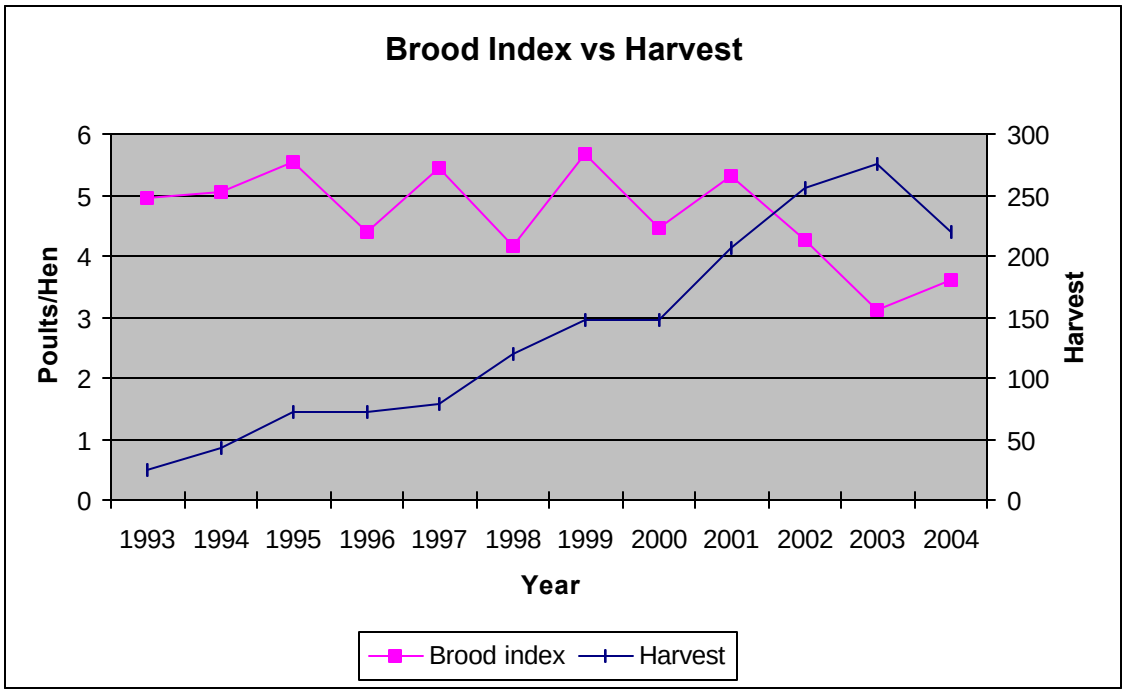
Table 4.

Rhode Island 2004 Mast Survey

Species	Abundent	Common	Scarce	Never Seen	% Abundent	%common	% Scarce	%Not Seen	Index
White Oak	0	2	19	2	0%	9%	83%	9%	4
Red/ Scarlet Oak	1	6	16	0	4%	26%	70%	0%	17
Black Oak	0	4	15	4	0%	17%	65%	17%	9
Scrub Oak	0	2	14	7	0%	9%	61%	30%	4
Hickories	1	1	10	11	4%	4%	43%	48%	7
Beech	0	1	9	13	0%	4%	39%	57%	2
Sumac	0	2	5	16	0%	9%	22%	70%	4
Grape	0	5	7	11	0%	22%	30%	48%	11
Greenbrier	0	1	17	5	0%	4%	74%	22%	2
Bittersweet	0	3	8	12	0%	13%	35%	52%	7
Apple/Crab Apple	0	4	5	14	0%	17%	22%	61%	9
Autumn Olive	1	4	3	14	4%	17%	13%	61%	13
Black Berry	0	1	4	18	0%	4%	17%	78%	2
White Pine	0	5	10	8	0%	22%	43%	35%	11
sassafras	0	1	0	22	0%	4%	0%	96%	2
black cherry	0	1	2	20	0%	4%	9%	87%	2
Black Birch	0	1	0	22	0%	4%	0%	96%	2
Red Maple	0	1	0	22	0%	4%	0%	96%	2
Ash	0	1	0	22	0%	4%	0%	96%	2
Creeping Jenny	0	1	0	22	0%	4%	0%	96%	2
Red Cedar	0	0	1	22	0%	0%	4%	96%	0
Pitch pipe Pear	0	1	0	22	0%	4%	0%	96%	2
Pitch Pine	0	1	1	21	0%	4%	4%	91%	2
Sweet Jim	0	1	0	22	0%	4%	0%	96%	2
Chestnut oak	0	0	1	22	0%	0%	4%	96%	0
American Holly	0	0	1	22	0%	0%	4%	96%	0

Total Surveys 23

Figure 6


Brood Index vs Harvest
Poults/Hen
Harvest
Year
0
1
2
3
4
5
6
0
50
100
150
200
250
300
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Brood index
Harvest

A mandatory hunter survey questionnaire was issued to all hunters in the 2004 hunting season with instructions to return the survey whether or not they hunted (appendix). Permits were issued to 1323 hunters during the 2004 spring season. Four hundred seventy four (474) surveys were returned, a 36% return rate. The survey response rate was also 36% in 2003.

The following tables summarize the results of the 2004 spring turkey hunter survey.

Table 6. Summary of hunting effort and a profile of turkey hunters during spring gobbler season.

Hunter Effort and Hunter Profile	2000	2001	2002	2003	2004
Number of Permits Issued	1000	1311	1456	1508	1323
Rate of Participation in Hunt	87%	89%	85%	84%	83%
Number of Hunting Trips	2529	3448	3562	1800	1413
Total hours hunted in survey	8850	11,666	12,802	6369	4825
Number hours per trip	3.5	3.4	3.6	3.5	3.4
Number trips per season	3.5	2.9	2.9	3.4	3.6
Total hunter days per season	3059	3399	3590	4304	3953
Total hunter hours	10706	11556	12920	15065	13440
Hunter success rate	15%	16%	20%	21%	20%
Years Experience < 1 year:	3%	8%	5%	6%	<1%
1 year	24%	17%	21%	21%	11%
2 year	16%	17%	22%	16%	12%
3 year	13%	12%	15%	16%	13%
4 year	9%	6%	8%	9%	8%
5 year	8%	7%	8%	9%	10%
> 5 years	31%	33%	18%	24%	26%
Average $ expenditure per hunter	$123	$93	$111	$107	$96
Total Spent by hunters/season	$107,682	$108,827	$137,856	$134,737	$105,408

*** 1-5 years experience**

Table 7. Gobbling activity, hunting activity and turkeys seen during spring seasons

Gobbling Activity	1997	1998	1999	2000	2001	2002	2003	2004
Number of gobblers heard	537	1995	2551	3256	4430	5058	2679	1944
Number gobblers heard per trip	0.85	1.01	1.12	1.3	1.3	1.4	1.5	1.4
Number gobblers heard per hour	0.22	0.26	0.32	0.37	0.38	0.4	0.4	0.4
Gobblers heard per 100 hours	22	26	32	37	38	40	40	40
Number gobblers killed	78	119	147	147	207	256	275	220
Number gobblers seen	202	1061	1289	1782	2203	3124	1669	1065
Number gobblers seen per trip	0.32	0.54	0.57	0.7	0.64	0.88	0.93	0.75
Number gobblers called in	146	675	784	1049	1271	1589	900	654
Number crippled and lost	3	14	4	5	13	36	6	7
Number missed	n/a	41	45	58	128	143	64	40
Number turkeys (either sex) seen	475	2706	2749	4529	5305	7557	3518	2647
Number hens seen	273	1645	1460	2747	3102	4433	1849	1582
Number turkey seen per trip	0.75	1.38	1.21	1.8	1.54	2.12	1.95	1.87

Figure 7

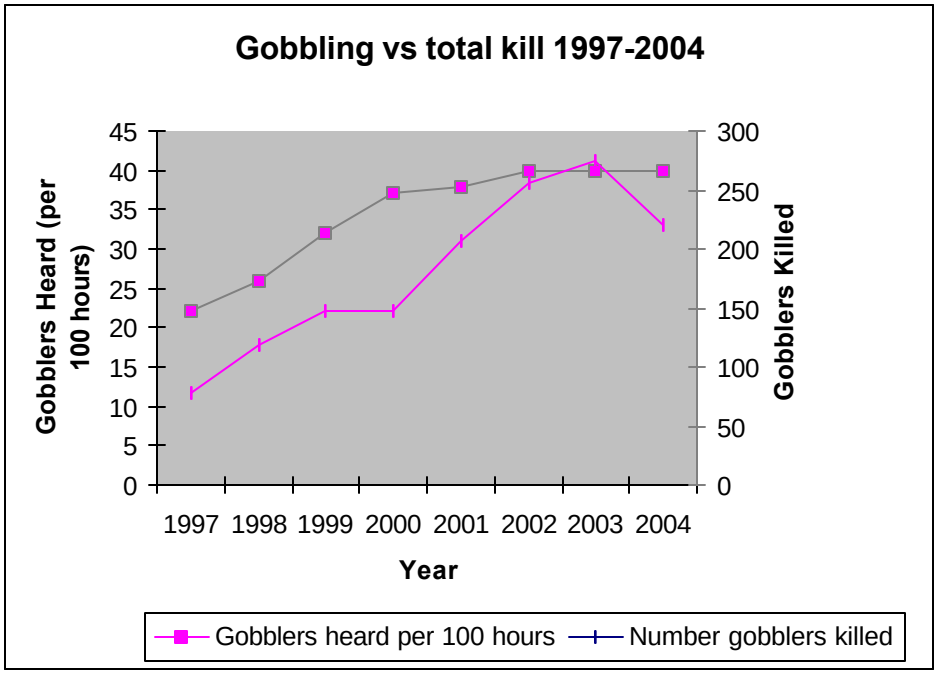


Figure 8

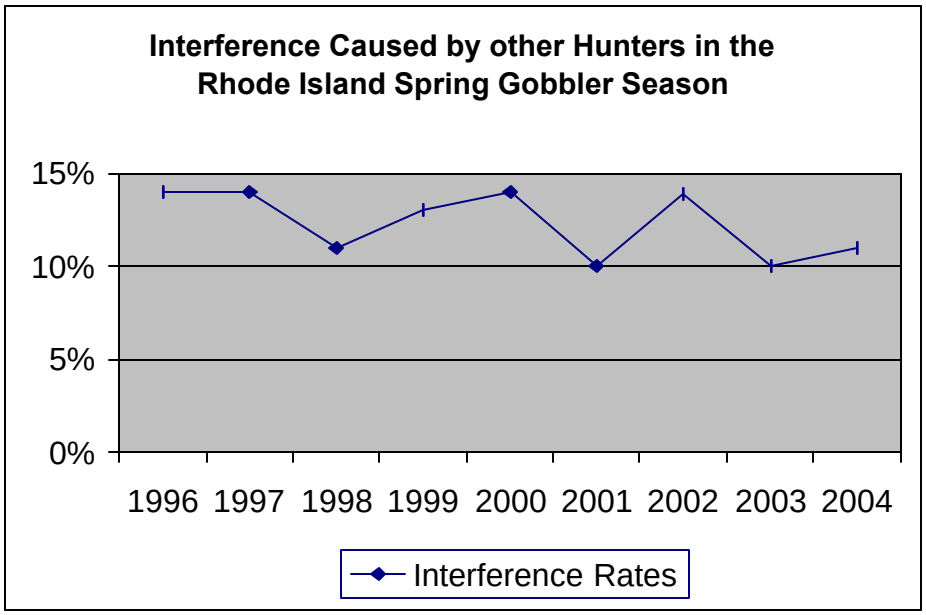


Table 8. Firearm choice and shot size used during spring gobbler seasons.

Weapon and Shot Size	1997	1998	1999	2000	2001	2002	2003	2004
Bow and Arrow	8.0%	8.5%	6.0%	9.6%	2.6%	2.6%	2.0%	2%
Shotgun and Bow/Arrow					4.5%	7.6%	3.3	5%
Shotgun	92.0%	91.5%	94.0%	90.3%	93.0%	89.8%	90.1	75%
Did not answer								18%
Shot Size Preferred								
#2	3%	3%						
#4	37%	35%						
#5	14%	13%						
#6	16%	20%						
#71/2	0	<1%						

Table 9. What one type of land do you do most of your hunting.

Type	2000	2001	2003	2004
Public land	35.0%	37.0%	31.4%	24.0%
Private not posted land	32.0%	28.2%	28.2%	31.0%
Private posted land	33.0%	34.8%	26.0%	28.0%
Combinations			4.7%	
Did Not Answer			9.7%	17.0%
	100.0%	100.0%	100.0%	100.0%

Acknowledgement: A. Beaudette provided assistance with the compilation of data from the 2004 hunting season. C. Brown, M. Talbot, L. Gibson, K. Lloyd, P. Ricard, T. Diluglio, J. Aron, P. Dolan, and D. Olszewski, provided assistance with the gobbler call-count survey and/or mast survey. The contributions of these individuals are greatly appreciated. I also wish to acknowledge the careful and complete observations made by the Rhode Island turkey hunters who returned surveys and in doing so contribute immensely to the knowledge and management of the Rhode Island wild turkey population.

Appendix